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ABSTRACT

The paper addresses current theory and research on cognitive approaches with behaviorally disordered youth, and considers assessment and intervention with special attention to methods developed from both cognitive-behavioral and social-cognitive perspectives. Distinctions and similarities between cognitive-behavioral and social-cognitive approaches are noted. The role of metacognition in the regulation of behavior (specifically related to memory) is examined. Assessment from both the cognitive-behavioral and social-cognitive perspectives is explored. Discussion of interventions focuses on self-monitoring and self-regulation as examples of cognitive-behavioral approaches and social problem solving as representative of social cognitive intervention. Factors associated with generalization and maintenance are covered. (CL)

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Cognitive Approaches to Social Competence with Behaviorally Disordered Youth

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Social incompetence appears to be a major problem shared by mildly handicapped students labeled behaviorally disordered (Hallahan and Kauffman, 1978), mentally retarded (Greenspan, 1979), and learning disabled (Bryan and Bryan, 1977). Social competence encompasses a wide area of cognitive and behavioral skills, but most generally refers to a person's effective participation in the activities of his or her social setting. The competent individual actively defines what he or she wants and possesses the skills to actualize those goals in specific social situations (Weinstein, 1969). Experts agree that social competence is something more than general intelligence; it includes intrapersonal sensitivity, appreciation of varied perspectives and problem-solving skills (Anderson and Messick, 1974). More and more attention is being paid to cognitive factors in social competence (Meichenbaum, Butler and Gruson, 1981).

The study of social competence has been plagued by confusion in its definition and measurement (Simeonsson, 1979). Research has been conducted under a variety of models, each of which has excluded important aspects of socially competent behavior (Meichenbaum et al., 1981).

This chapter focuses on cognitive approaches that assist in the analysis and remediation of socially inappropriate behavior. Although there are other approaches to changing behavior, cognitive approaches, taken as a whole, are useful in integrating disparate models, and provide a unified direction to the study of social competence. Two major types of interventions based on cognitive approaches serve to increase metacognitive skills (planning, checking, awareness, etc.) and are important to the conceptualization, study and remediation of socially competent behavior. Those major types of intervention techniques are from a cognitive-behavioral and social-cognitive perspective.

This chapter discusses current theory and research on cognitive approaches, then addresses assessment and intervention with special attention to methods developed from both cognitive-behavioral and social-cognitive perspectives. Finally, generalization and maintenance following intervention will be discussed.

Research and Theory on Cognitive Approaches to Social Competence

Problems in social competence are a major defining characteristic of behaviorally disordered and other groups of mildly handicapped children. Much of the impetus for the increased interest in the study of social competence has come from the movement toward mainstreaming exceptional children in regular classrooms. Two approaches with a cognitive emphasis are the social-cognitive/developmental perspective and the cognitive-behavioral perspective. Although these represent distinct traditions in the conceptualization and remediation of socially competent behavior, they share a common emphasis on cognitive variables.

A Cognitive-Behavioral Approach to Social Competence

One important set of tools in training "social skills" in exceptional children is derived from an applied behavior analysis perspective (Hersen and Barlow, 1977). Although not a comprehensive theoretical framework for explaining the development of socially competent behavior, the procedures derived from this perspective have proven invaluable to practitioners charged with remediating maladaptive social behaviors. In general, research in this area has focused on empirically demonstrating the relationship between specific environmental manipulations and changes in the levels of specifically defined observable, quantifiable behaviors (see, for example, Lovaas and Bucher, 1974). The implicit theoretical basis for this approach is that social competence consists of specific, discrete, observable and measurable learned behaviors that are controlled by environmental events. In general, interventions derived from this perspective include the use of external controls, manipulating specific environmental stimuli and carefully quantifying resulting changes in target behaviors (Thompson and Grabowski, 1972).

In the last 10 years, a shift has taken place in treatment philosophies for the behaviorally disordered. Most recently, applied behavior analysts or "behavior modifiers" have merged with more cognitive-based researchers and practitioners. Many cognitive psychologists have begun to accept the importance of

Problem-solving skills comprise social competence to the extent that a person can plan his or her actions, weigh the pros and cons, and consider their effects on others.

empirical evaluation, while many behavioral psychologists, who once considered only overt behaviors, have begun to view cognition as important in the behavior change process (Kendall and Hollon, 1979). A very important reason for this merger is the failure of many behavioral procedures to produce durable, generalizable changes in academically relevant behaviors (Wahler, Berland and Coe, 1979). This point will be discussed in more detail in the section on generalization.

Many current theorists espouse a cognitive-behavioral model, aligning themselves somewhere between traditional cognitive and behavioral orientations to treatment (Bandura, 1969, 1978; Mahoney, 1974, 1977; Meichenbaum, 1977; Mischel, 1973). The amalgam of the two approaches has spawned considerable research in cognitive-behavior modification in treating behavioral disorders. Kendall and Hollon (1979) described a cognitive-behavioral intervention to be a "purposeful attempt to preserve the demonstrated efficiencies of behavior modification within a less doctrinaire context and to incorporate the cognitive activities of the client in efforts to produce a therapeutic change." (p. 1)

While a number of behaviorists (Wolpe, 1978; Deitz, 1978) continue to denigrate the role of these cognitive activities in behavioral change, Kendall and Hollon (1979) identified four relatively independent streams of influence that led to the development of cognitive behavior modification. These influence streams are: (1) the assumption by some (Ullman, 1970) that cognitions are subject to the same laws of learning as overt behaviors; (2) the assertion (Ellis, 1962) that attitudes, beliefs, expectancies, attributions and other cognitive activities are central to understanding, producing and predicting both psychopathological behavior and the effects of treatment on the behavior; (3) the movement by some experimental learning theorists (Bandura, 1977; Kanfer, 1970) to investigate covert and overt behavior; and (4) the efforts by a number of researchers and clinicians to combine behavioral contingency management procedures with cognitive treatment strategies (Lovitt and Curtiss, 1969).

Meichenbaum et al. (1981) proposed a useful model of social competence based on a cognitive-behavior modification paradigm that includes three interdependent components: overt behaviors, cognitive processes and cognitive structures. Overt behaviors are directly observable verbal and nonverbal behaviors occurring in an interpersonal context. Cognitive processes are the thoughts and images that precede, accompany and follow these overt behaviors, as well as the thinking skills and information processing styles used by individuals in social situations. Cognitive structures refer to the meaning systems individuals use to give motivation, direction and organization to thought and behavior in a social context.

Similar to Bandura's (1978) theory of reciprocal determinism and Mischel's (1973) cognitive social learning theory, Meichenbaum et al.'s model contends that a focus on overt behaviors per se is necessary but not sufficient in studying social competence. The role of the individual's cognitions (processes and structures) must also be taken into account. Shure (1981) stated that, because of the dramatic effect of thinking on doing, social competence can be viewed only in light of how people think.

Lloyd (1980) pointed out that cognitive behavior modification (CBM) is often composed of the following characteristics. First, the subjects themselves, rather than external agents, are the primary change agents. (If this is not the case at the beginning of the training, it is a final goal of intervention.) Second, verbalization (often at first overt and later covert) is a primary component. Third, subjects are often taught to identify and use a series of steps (or strategies) to solve a problem. Fourth, modeling has often been used as an instructional procedure. Finally, a great deal of the CBM literature focuses on helping students gain self-control.

The central aspect of verbal processes in CBM can be attributed to the theoretical framework laid down by the Russian psychologists Vygotsky (1962) and Luria (1961), which concerns the role of language in regulating behavior. These theoreticians proposed that a child gains eventual regulation over his or her behavior by using covert intrapersonal speech. The child is first exposed to the interpersonal instructions and verbalizations of others, for example in mutual problem solving, and these later become abbreviated and internalized. Although this model has been criticized (Bloor, 1977), it has proven valuable in formulating training programs for teaching children self-control behaviors (Meichenbaum, 1978).

Although not a comprehensive and definitive review, this discussion of cognitive-behavioral approaches should provide the unfamiliar reader with a general orientation to the many specific

A competent memorizer knows from past experience that tasks present unique demands requiring a tailored strategy. As an individual becomes more expert at memory tasks, interactions become more sophisticated.

It is not that subjects are incapable of performing memory tasks. They possess the required strategies, but fail to act strategically with the information.

approaches falling under the cognitive-behavioral label. The second cognitively based approach we will discuss is called social-cognitive. Although there are interesting areas of overlap between the two frameworks, there are important differences as well.

A Social-Cognitive Approach to Social Competence

There has been a substantial rise in attention devoted to social competence in children, especially by developmental psychologists. The term preferred by many investigators in this area is social cognition. In general, social cognition refers to the ability to understand and deal effectively with social and interpersonal objects and events (Greenspan, 1979).

From a cognitive developmental perspective, social competence to some extent depends on cognition about the social world; that is, about others and relationships with or between others. In some domains social-cognitive developmental sequences have been described (e.g., moral judgment, role taking, referential communication), and a variety of methods have been employed in attempts to facilitate development in each domain. Several reviews are available to provide a representative picture of both the quantity and diversity of studies from this perspective (Chandler, 1977; Flavell, 1974; Looft, 1972; Shantz, 1975; Youniss, 1975). In addition, at least two reviews have focused specifically on exceptional children (Greenspan, 1978; Simeonsson, 1979).

Most of the research in this tradition follows a neo-Piagetian framework. That is, the concepts of egocentrism and decentration are central to this line of inquiry. Greenspan's model of social intelligence (1979) is indicative of the composite skills or traits that are the focus of these studies. They include role taking, social inference, social comprehension, moral judgment, psychological insight, referential communication skills and social problem solving. Affleck (1977) has provided a neo-Piagetian model for developing interpersonal competency in mentally retarded children.

Although there are many areas to consider when examining a social-cognitive perspective to social competence, one especially important area is social problem solving.

Social Problem Solving. Greenspan (1979) defined social problem solving as the ability to deal effectively with situations in which there is a divergence of needs between the actor and one or more people. For most people, such situations occur many times during a day in interpersonal contacts. How people go about handling problems with others determines in part their emotional well-being and level of social competence (Spivack, Platt and Shure, 1976).

The success a person has in resolving interpersonal problems is due to a complexity of interrelated factors (Spivack et al, 1976). To fully understand the social problem-solving process, it is first necessary to investigate *how* people think through a problematic situation and select their course of action. This investigation is important because of the dramatic effect thinking has on doing (Shure, 1981).

One operationalization of this cognitive approach is found in the interpersonal problem-solving program developed by Spivack, Shure and colleagues (1974, 1976). Their program is based on the proposition that a series of interpersonal cognitive problem solving (ICPS) skills mediate the thinking process a person engages in when confronted with a social problem. The skills are:

(a) sensitivity to interpersonal problem situations,
(b) generation of alternative solutions (alternative thinking),
(c) tendency to link cause and effect spontaneously (causal thinking),
(d) readiness to view the consequences of one's actions (consequential thinking),
(e) ability to conceptualize step-by-step means for reaching specific goals (means-end thinking), and
(f) the ability to view situations from the perspective of other involved individuals (perspective taking).

Several interpersonal cognitive problem-solving skills are similar to variables cited by other investigators as important cognitive skills for social competence. Spivack and Shure's (1974) concept of sensitivity is similar to Flavell and Wellman's (1977) concept of sensitivity as a type of metacognition. Perspective taking is similar to the concept of role taking as discussed by cognitive-developmentalists (Chandler, 1977; Greenspan, 1979). From this perspective, at least one aspect of socially incompetent behavior is due to inadequate role-taking abilities. Although no precise data are available about the

particular ages at which role-taking skills emerge, theoretically age seven is when egocentrism begins to decline and role-taking abilities increase (Chandler, 1977).

The Spivack and Shure program isn't the only model designed to investigate the social problem solving process. D'Zurrilla and Goldfried (1971) defined *problem solving* as

> a behavioral process, whether overt or cognitive in nature, which (a) makes available a variety of potentially effective response alternatives for dealing with the problematic situation, and (b) increases the probability of selecting the most effective response from among these various alternatives. (p. 108)

They conceptualized a five-step problem-solving model: (a) general orientation, (b) problem definition and formulation, (c) generation of alternatives, (d) decision making, and (e) verification. In the general orientation phase, individuals recognize that problems occur in normal living, realize they can cope with problems, realize when problems occur, and inhibit impulsive response. In problem definition and formulation, individuals translate abstract terms into concrete examples. The generation-of-alternatives phase is based on "brainstorming" techniques that encourage the production of many solutions to a problem. In the decision-making phase, individuals evaluate alternatives in terms of their outcome and decide on the course of action. The last phase, verification, allows for evaluating the success of the overall process.

The cognitive processes involved in social problem solving have been highly related to the behavioral adjustment of preschoolers, school-age children and adolescents (Spivack, Platt and Shure, 1976); juvenile delinquents (Little and Kendall, 1979); adolescent psychiatric patients (Platt, Altman and Altman, Note 1); youthful incarcerated heroin addicts (Platt, Scura and Hannon, 1973); and adult psychiatric patients (Platt and Spivack, 1972). Shure (1981) considered problem-solving skills as comprising social competence to the extent that a person can plan his or her actions, weigh the pros and cons of these actions and consider effects of actions on others.

Interpersonal cognitive problem-solving skills differ from cognitive processes typically measured by intellectual tests (Allen, Chinsky, Larcen, Lochman and Selingers, 1976; Spivack et al., 1976). There is no evidence that interpersonal (social) problem-solving skills involve the same cognitive structures as impersonal (intellectual) problem-solving skills (Little and Kendall, 1979). Spivack et al. (1976) found low correlations between interpersonal cognitive problem-solving skills and measures of general intelligence, originality of thinking, or test verbal behavior.

A commonality in the approaches is the importance placed on critical skills such as planning, checking and other self-monitoring skills designed to increase awareness in regulating one's behavior. These skills are useful in a broad range of problem-solving situations, such as when one is attempting to decide on a course of action in a social situation. Intriguingly, these skills appear to be major components of what some researchers have termed metacognition. A general discussion of metacognition illustrates the close relationship of these two approaches to social competence and the broader area of metacognition, which plays an important part in social competence.

The Role of Metacognition in the Regulation of Behavior

Metacognition has been described by Flavell (1976) as:

> . . .one's knowledge concerning one's cognitive processes and products or anything related to them, e.g. the learning-relevant properties of information or data. For example, I am engaging in metacognition (metamemory, metalearning, metaattention, metalanguage, or whatever) if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; if it occurs to me that I had better scrutinize each and every alternative in any multiple-choice type task situation before deciding which is the best one; if I become aware that I had better make a note of D because I might forget it; if I have it right. . . .Metacognition refers, among other things, to the active monitoring and consequent regulation and orchestration of these processes in relation to the cognitive objects or data on which they bear, usually in the service of some concrete goal or objective. (p. 232)

If students are aware of the options available to them, but continue to behave in socially inappropriate ways, then the issue becomes one of can't vs. won't.

Experimental tasks typically are structured, rigid and contrived, while real-world tasks are unstructured and flexible, and represent natural performance.

Researchers have investigated the role metacognition plays in memory (Brown, 1975; Flavell and Wellman, 1977), attention (Miller and Bigi, 1979), problem solving (Brown, 1978; Flavell, 1976), and social cognition (Flavell, 1981b). Of interest here are the implications of examining metacognition in relation to social behavior. Some of the work on metacognition and memory performance of young children exemplifies how this theoretical notion can be applied to looking at and potentially improving social behavior. We will look at memory, because it is the domain in which the greatest amount of research has been carried out.

Metamemory. Flavell and Wellman (1977) have defined *metamemory* as an individual's knowledge of anything germane to information storage and retrieval, or one's knowledge about one's own memory processes. They classified the major types of metamemory an individual acquires as metacognitive sensitivity, awareness of variables that affect cognition, and awareness of interactions between variables.

Sensitivity. Refers to the sense one has for when the situation he or she is in calls for efforts of voluntary, intentional remembering. Certain situations call for employment of specialized cognitive activities or memory strategies. The sensitivity for knowing when and how to engage in a memory strategy appears to develop with age and is necessary for an accurate match of strategy to situation.

The second major type of metamemory is labeled awareness of *variables*. This refers to the knowledge of what factors or variables act in what ways to affect an individual's performance on a memory problem. Flavell and Wellman distinguished three categories of such variables: person, task and strategy. Person variables are all things an individual could learn about his or her own memory processes or products. Examples include knowing that you are better at remembering faces than names, or knowing that something you are trying to memorize still needs more study. Task variables include knowledge of task factors that affect the difficulty of a memory problem. For example, it is easier to remember related words than unrelated words, or it is easier to recognize information than to recall it. Strategy variables refer to knowledge of the activities one can voluntarily do to help one's memory system achieve a goal. Examples of strategy variables include repeating a telephone number over and over before dialing, or making up a sentence to remember items on a list such as "Every Good Boy Does Fine" to remember E, G, B, D and F as the names of note lines in the treble clef.

The third type of metacognition in Flavell and Wellman's model is the *interactions* of these three variables, as well as metacognitive knowledge about each individually. For instance, a competent memorizer knows that he or she is better at performing some strategies than others (person *x* strategy) or that there is a certain strategy that often is more effective for a particular task (strategy *x* task). The person also knows from past experience that there are tasks that present unique demands requiring an especially tailored strategy (person *x* task *x* strategy). As an individual becomes more expert at memory tasks, the interaction of variables becomes more sophisticated.

Important findings have also emerged from metamemory research. Investigators such as Brown and Deloache (1978), Campione, Nitsch, Bray and Brown (Note 2), and Flavell (1976) suggest that a central aspect of inadequate performance on memory tasks is failure to use "strategies" and lack of ability to formulate and use plans. This failure to employ mnemonic strategies appears to be the main difference between developmentally young and mature memorizers and appears to develop with age.

Several investigations suggest that the spontaneous self-instruction that signals when to use a strategy is developmental and characteristic of sophisticated problem solvers. This type of self-instruction is similar to Flavell and Wellman's (1977) sensitivity type of metacognition. Masur, McIntyre and Flavell (1973) found that when studying material on which they had been tested previously, seven-year-olds did not study missed items in preference to the study of successfully retrieved items. Siegler and Liebert (1975) found that significantly fewer 10-year-olds than 13-year-olds elected to engage in a strategy to aid memory, suggesting that the younger children did not recognize the need or utility of doing so. Flavell (1970) coined the term *production deficiency* to describe a child's failure to use a memorization strategy spontaneously when the

situation called for it, even though he or she could and would use that strategy effectively if directed to do so by somone else. Younger children appear to have a more pervasive "production deficiency" in that they do not deliberately use or plan to use strategies in situations where more mature individuals are prone to do so (Flavell and Wellman, 1977).

Whether the children in these studies were capable of strategic behavior or not, it appears they were deficient in knowing *when* to employ strategies. Training studies have demonstrated that when retarded persons are trained in strategy use, they become as proficient at memory tasks as their normal counterparts (Brown, Campione, Bray and Wilcox, 1973; Butterfield, Wambold and Belmont, 1973). However, improved performance has often been found to be situation-specific and not transferable (Campione et al., 1980). When the memory task changes, students do not use strategies to perform the task. This may indicate a deficiency in metacognition, that is, a lack of knowing *when* to use a strategy, rather than a deficiency in strategic behavior per se.

Kruetzer, Leonard and Flavell (1975) specifically investigated the metamemory abilities of 20 children at each of grades K, 1, 3, and 5. They found older children better able to predict their own memory abilities (personal variables). This finding supports similar work that indicates that older children are better able to predict their own memory performance (Flavell, Friedrichs and Hoyt, 1970; Flavell and Wellman, 1977). Kreutzer et al. (1975) also found that older children were more likely to recognize the effects of task difficulty such as list length and list versus text (task variables). Moynahan (1973) came to the same conclusion after finding that older groups predicted that categorized sets were easier to recall than unrelated items.

Kreutzer et al. (1975) investigated strategy variables by presenting subjects with a problem and asking them to think of all the things they could do to solve the problem. Older children could think of more retrieval strategies than younger ones, and generally showed a greater sense of planfulness in their answers. *Planful* refers to their ability to form and maintain a clear image of the mnemonic goal and to try to create effective, specific means of attaining the goal (Flavell, 1970). The researchers also found that "in-the-world" strategies were proposed often than "in-the-child" strategies by children of all ages. This means that the memory strategies used were external types, such as writing notes or rearranging objects, as opposed to internal types, such as producing associations between known and unknown information.

Previous studies on metamemory suggest that handicapped and developmentally young children exhibit memory deficiencies, at least in part, because of metacognitive deficits. It is not that these subjects are incapable of performing appropriately on memory tasks, but their behavior suggests that they simply are unaware of critical aspects of the task and of themselves as active memorizers. That is, they possess the required strategies but fail to act *strategically* with the information.

In the same way problems in metacognition have been proposed to account for deficits in memory performance of some children, it may be hypothesized that a similar problem exists with children who exhibit behavior problems.

Metacognitive Aspects of Social Behavior

Flavell (1981a) states that most social cognition seems intrinsically metacognitive. He suggests that monitoring one's social cognition may be a promising new subject for developmental research. Similarities between metacognitive knowledge in experimental memory tasks and real-world social problem-solving situations justify applying experimental findings to the study of social behavior from this perspective. Experimental memory tasks and social cognitive tasks both require metacognitive knowledge of when and how to engage in strategies to facilitate accurate performance. Both types of tasks require the types of metacognitive knowledge that Flavell and Wellman (1977) described: (a) metacognitive sensitivity, (b) awareness of person, task and strategy variables, and (c) awareness of interaction between variables.

There is some support for the concept of the non-specificity of metacognition to any particular behavioral or cognitive domain. Yussen and Bird (1979) found that metacognitive awareness of variables related to performance in the cognitive domains of memory, communication and attention was remarkably similar for children at two developmental levels.

Self-evaluation is a cue for determining the allowable self-reinforcement or self-punishment. It is the vital middle link in the self-regulation process.

In training ICPS skills, the intent is to develop effective thinking processes in children, rather than adult-valued appropriate thinking content.

Although experimental tasks and real-world social problem-solving tasks are similar, they are not equivalent. Usually, goals for performing experimental tasks are defined externally, while goal definition for a real-world task is part of the task itself and determined by the subject. Experimental tasks typically are structured, rigid and contrived, while real-world tasks are unstructured and flexible, and represent natural performance. It's necessary to examine similarities and differences of the two types of research tasks to make appropriate inferences about their results.

Metacognition is most apt to occur when one engages in conscious cognition (Flavell, 1981a). Conscious cognition occurs when demands are implicit as well as explicit, when one has to behave in new and unaccustomed ways, or when the outcome is important. Each type of metacognitive knowledge is necessary for adequately performing tasks requiring cognitive action, independent of specific task characteristics.

In light of these considerations, we may hypothesize that a similar lack of metacognitive knowledge or skill in social behavior may accompany inadequate social performance. It can be argued that, like incompetent memorizers, students who are socially incompetent do not spontaneously use cognitive strategies when needed and are not planful in the strategies they do employ. They may have appropriate strategies available, but do not know *how* and *when* to use them; that is, they have a deficiency in metacognition.

Relationship of Cognitive Approaches to Social Competence and Metacognition

Cognitive-behavioral and social-cognitive (especially social problem solving) approaches to social competence suggest treatment programs to advance metacognitive skills, such as awareness of social behavior and awareness of oneself as a social behaver.

In the case of cognitive behavioral approaches, especially those such as cognitive behavior modification, it is relatively easy to see how treatment would increase metacognitive-like awareness. For example, self-recording and self-monitoring force students to examine their behavior in context. Similarly, self-evaluation and self-reinforcement force students to examine the consequences of their actions in relation to changing context and activities. Overall, the emphasis on the self as the intervention agent, such as using self-speech to guide one's behavior, helps to assure that awareness of one's behaviors and their consequences are by-products of the behavior change program.

Similarly, each of the social problem-solving skills (for example the interpersonal cognitive problem-solving skills identified by Spivack and Shure) enables a person to be aware of his or her own cognitions and accompanying behavior in a variety of social situations. Sensitivity to social problem situations allows a person to recognize critical aspects of a situation and predict future performance based on past performance; both are metacognitive processes. In general, decentration, which is crucial to most social cognitive skills in many domains, involves an awareness of others' behaviors in relation to oneself. Clearly, this is very similar to what others describe as metacognition.

Generating alternative solutions, viewing the consequences of one's own actions, and conceptualizing the steps required to attain goals are the metacognitive processes of planning, organizing and orchestrating cognitive events. The abilities to link cause and effect and view situations from another's perspective are based on the metacognitive processes of monitoring and checking cognitive events in relation to environmental events. In essence, cognitive approaches based on very different theoretical foundations target the same overall planning, checking and monitoring of cognitions related to social behavior. The result of successful intervention should be an individual with a heightened awareness of the factors of influencing his or her behavior in various social contexts.

Cognitively based approaches to social competence provide a framework for the study and remediation of inappropriate social behaviors. Close parallels exist between skills that are targets of cognitive-behavioral and social-cognitive interventions, and intrapersonal activities characterized as metacognitive by researchers studying children's problem-solving behavior. These metacognitive skills are

important to successful problem solving in areas like memory tasks, and these same skills might be equally important for solving the social problem of knowing how to behave appropriately in different situations and contexts.

Assessment

Cognitive-Behavioral Perspective

The evaluation of social competence from a cognitive-behavioral perspective emphasizes the role of cognitions in the behavioral repertoire (Meichenbaum, 1977). This type of cognitive-functional analysis of behavior includes a careful examination of thinking processes to determine which cognitions under what circumstances are contributing to or interfacing with a specific behavior. Of interest are the cognitions that occur before, during and after a specific behavioral response. A cognitive-functional analysis involves identifying the essential cognitive components of the task in an attempt to specify the "why" of a performance deficit (Meichenbaum, 1977). The approach requires an examination of the task, noting each cognitive step, and then testing each step to determine the breakdown in relation to task performance.

The cognitive-behaviorist is also interested in behavioral changes that result from environmental manipulations. Meichenbaum describes three types of environmental manipulations: (a) modify the task; (b) modify nontask, environmental variables; and (c) modify supports given to the subjects, such as prompts or aids. By altering these variables, an evaluator can determine the conditions under which a subject can and cannot perform, specifically pinpointing the deficient aspect of the subject's behavioral repertoire. As Meichenbaum points out, a cognitive-functional analysis not only reports differences in performance but conducts the necessary detective work in pursuit of the "why."

The "detective work" is accomplished by employing any or a combination of assessment procedures: (a) clinical interviews, (b) behavioral assessments that incorporate role playing, videotaping or think-aloud techiniques, (c) projective devices that use pictures, slides, etc. and (d) psychometric tests (Meichenbaum, 1977).

The clinical interview is frequently used along with other techniques to externalize the subject's thoughts and feelings. The interview process commonly includes definitions from the clients of the nature, severity and generality of the problem behavior and the conditions surrounding its occurrence. Behavioral assessments involve the subject performing the desired behavior in a role play situation, often with the use of videotape. An interview then follows to assess the subject's reconstruction of thoughts and feelings that occurred during performance. The subject can also be asked to "think-aloud" while performing the problem behavior providing a concurrent introspective report. Pictures, slides and movies that portray problem behaviors have been used to encourage verbalizations of internal dialogues. Lastly, psychometric instruments such as rating scales and questionnaires can be used alone or in conjunction with behavioral assessments as another form of self-disclosure.

Social-Cognitive Perspective

While cognitive-behaviorists analyze cognitions functionally related to particular problem behaviors, social-cognitivists analyze developmental progress in one or more domains theorized to comprise social cognition. You may refer to Greenspan (1979) for a discussion of the domains thought to be related to social cognition. The properties of assessment are not as unified in the realm of social cognition as they are in cognitive behavior modification.

The social problem-solving model most often described in the literature is that of Spivack, Shure and colleagues (1974; 1976). They propose a series of interpersonal cognitive problem-solving skills (ICPS) that comprise social problem-solving ability. A review by Little and Kendall (1979) of problem-solving studies

Cognitive approaches are crucial to the development of a metacognitively sophisticated individual who can plan ahead, self-interrogate and engage in regulatory behavior.

with atypical adolescent populations found these groups deficient in three areas: alternative thinking, means-end thinking and perspective-taking. Assessment techniques similar to those used in cognitive behavior modification were used in developing assessment devices for each interpersonal cognitive problem-solving skill. For example, the Preschool Interpersonal Problem-Solving (PIPS) Test was developed to assess alternative thinking ability. The measure involved presenting subjects with a series of four problem social situations through pictures and verbal descriptions. After each presentation, subjects were asked to respond with all the things a person could do to solve the problem. Scores were based on the number of discrete and relevant solutions generated for each problem.

The Means-End Problem-Solving (MEPS) Test was developed in a similar fashion as the PIPS test to measure another interpersonal cognitive problem-solving skill, means-end thinking. Subjects were given the beginning and end of a series of six socially problematic situations and asked to provide the middle to indicate "how the ending got to be that way." Scoring considered the awareness of individual steps to reach the goal, potential obstacles and passage of time (Spivack et al, 1976).

The assessment of perspective-taking developed by the interpersonal cognitive problem-solving skill group is similar to the role-taking assessment conducted by researchers and others in the social-cognitive area. This skill cuts across social-cognitive skills in general, and from a social-cognitive perspective is a very important part of socially competent behavior.

Platt, Spivack, Altman, Altman and Peizer (1974) modified a procedure previously developed by Feffer and Jahelka (1968) called the Role-Taking Test (RTT). This procedure asks subjects to make up a series of four stories based on a Thematic Apperception Test (TAT) card. After the stories were completed, the subjects retold them from the viewpoint of each of the characters. Scoring indicated the extent the stories were coordinated between versions and reflected the position of each character. Another approach involves asking a child to tell a story from a set of seven cards displaying pictures. Three cards are then removed and the subject is asked to tell the story again, this time from the view of a person who has just entered the room (Flavell, Botkin, Fry, Wright and Jarvis, 1968). Chandler (Note 3) devised yet another method using those two techniques. The subject was given a sequence of cartoons portraying a social interaction and asked to relate the story from the viewpoint of the central character and then from a late-arriving bystander.

Pespective-taking or role-taking (depending on one's orientation) is a widely researched cognitive skill. This is largely due to the belief that the ability to "decenter" or put oneself in the shoes of others (perspective-taking) may be a necessary but not sufficient prerequisite for effective social problem-solving (Spivack et al, 1976). Role-taking is important in developing cognitive skills in addition to social problem-solving (Little and Kendall, 1979).

Summary

Cognitive-behavior modification and social-cognitive orientations rely primarily on verbal self-report techniques in assessment. Both approaches focus on cognition, although cognitive-behaviorists are more concerned with specific conditions functionally related to behavior. Social-cognitivists are more concerned with measuring developmental progress along one or more social-cognitive domains thought to mediate behavior. The important link, however, is that both approaches involve, at least in part, metacognitive aspects of social behavior (i.e., how well one can monitor his or her own cognitions, planfulness, strategy use, etc.).

Earlier, it was suggested that socially incompetent students may not spontaneously employ cognitive strategies when needed (such as is the case with poor memorizers) and are not planful in the strategies they do employ. It is possible that these students have appropriate strategies available, but don't know how and when to use them, i.e., a metacognitive deficit. However, this raises the alternative possibility that, if students are, in fact, aware of these factors, but continue to behave in socially inappropriate ways, then the issue becomes one of *can't* vs. *won't*. (Howell, 1978). That is, students in the latter case may be making a conscious choice to behave in this fashion. This is important from an assessment perspective, since it may differentiate students who exhibit inappropriate behavior. When cognitive interventions are deemed ineffective based on such an analysis, it is important to focus on more environmental, ecologically based interventions.

Interventions

Several cognitive-behavioral and social-cognitive interventions improve socially competent behavior. Although these interventions are not called "metacognitive" per se, they attempt to increase awareness of one's own behavior, as well as to increase planful and strategic behavior. It is essentially these characteristics that bring them into the metacognitive realm and make them important for our present discussion.

Cognitive-Behavioral Interventions

Many intervention strategies emanating from the cognitive behavioral perspective have the common goal of self-control, i.e., internal as opposed to external regulation of behavior. Although several of the intervention strategies focus on the role of cognitions (images and verbalizations) in behavior change and regulation, specifically self-instruction techniques, other self-control methods are often used to implement independent regulation of behavior. These include self-monitoring, self-evaluation and self-reinforcement.

Self-Monitoring. It is difficult to discuss self-instruction separately from other methods of self-control, since they are most often used in conjunction. Nevertheless, there are instances when modifying subjects' self-statements is the primary focus of intervention.

One early study by Meichenbaum and Goodman (1971) used a self-instructional training program involving a combination of modeling, overt and covert rehearsals, prompts, feedback and social reinforcement. Although improvement was evident on the experimental measures after a four-week follow-up assessment, the treatment effects did not generalize to the classroom.

Other "think-aloud" procedures have been used in attempts to develop self-control in impulsive and hyperactive children by teaching a "stop, look and listen" routine to promote thinking before acting (Camp and Bash 1981; Palkes, Stewart and Freedman, 1972; Palkes, Stewart, and Kahana, 1968; Douglas, Parry, Marton and Garson 1976). Meichenbaum (1977) described in detail how self-instructional training can be implemented in various settings.

Self-Regulation. Self-regulation or self-control interventions for improving socially competent behavior can be divided into two approaches: (1) *self-maintenance* where the child uses self-control procedures to maintain behaviors initially acquired through external or teacher control and (2) *self-change* where the child is taught self-control procedures to develop new behaviors not previously in his or her repertoire (Rueda, Rutherford and Howell, 1980).

Kanfer and Karoly (1972) propose a three-stage self-regulatory process applicable in developing either self-maintenance or self-change interventions. These stages, in which individuals alter or maintain their behavior in the absence of immediate external supports, involve: (1) self-monitoring; (2) self-evaluation; and (3) self-reinforcement or self-punishment.

Self-monitoring is the process in which individuals observe and record their own behavior. Polsgrove (1979) describes an example of how the self-monitoring process might work:

> In training a child to monitor his behavior, a trainer may first select and behaviorally define a target behavior. Next, he may have the child record examples of his behavior using a wrist counter, abacus, tally card or stop-watch. The child also may maintain a graph, chart or a journal of his behavior. Self-monitoring and recording provides visual feedback of the child's progress and leads to self-evaluation (p. 118).

In several recent studies, behaviorally disordered students were taught to monitor and record their own behavior (Rutherford, Howell and Rueda, 1982). These studies examined students' ability to reliably monitor their peers' and their own general on-task behavior, and verbal, motor and passive off-task behavior in a classroom setting.

Students were trained to monitor the behavior of the trainer, other students and then themselves in the classroom context. In a separate phase, students were trained to self-monitor and self-record idiosyncratic maladaptive behaviors.

The results of both studies indicate that behaviorally disordered students can be taught to monitor and record general and idiosyncratic maladaptive behavior with a high degree of reliability.

Kanfer and Karoly's (1972) second stage in the self-regulation process is self-evaluation that involves "making a discrimination or judgment about the accuracy of. . .performance relative to a subjectively held standard or comparison criterion" (p. 209). Self-evaluation involves comparing one's behavior to an established personal or normative standard. Self-evaluation is greatly facilitated when individuals have self-

monitored data in the form of records, charts and graphs of their behavior. Self-evaluation serves as a cue for determining the degree of allowable self-reinforcement or self-punishment. It is the vital middle link in the self-regulation process.

The final stage of Kanfer and Karoly's model of self-regulation is self-reinforcement or self-punishment, where the judgment made in the self-evaluation stage acts as a stimulus for either positive self-reinforcement or self-presented aversive stimulation. For example, in the study by Rutherford, Howell and Rueda (1982), when the students contingently rewarded themselves with bonus tokens for not exceeding the predetermined number of idiosyncratic maladaptive behaviors, they were engaging in the final phase of the self-regulatory process — self-reinforcement.

Similar to self-instruction, cognitive processes involved in self-regulation guide students to monitor and later evaluate the effectiveness of their "thinking" before, during and after a behavioral act.

The literature on the efficiency of self-regulatory techniques holds promise for behaviorally disordered students (Rueda, Rutherford and Howell, 1980). However, like self-instruction, questions continue to exist concerning generalization and maintenance effects.

Meichenbaum and Asarnow (1979) suggest that teachers incorporate cognitive-behavioral technology in their curricula, taking advantage of the many opportunities in the day to promote cognitions that facilitate social competence. Saturating the classroom environment with visual reminders to apply cognitive skills enhances sensitivity to problematic situations. Once problems are identified, visual reminders also help initiate the process of generating planful strategies to solve the problems. Pictures, videotapes, cartoon books and other types of media are effective tools. Academic tasks as well as social tasks can be organized and presented in a way that the child's job is to identify the problem to be solved. The intent is to design a curriculum that inherently depends on the use of specific cognitive skills.

Social Cognitive Interventions

A variety of separate skills or domains might be included under the heading of social-cognitive interventions. There have been several attempts to train children in these skills, especially in role-taking and referential communication (Greenspan, 1979; Shantz, 1975; Simeonsson, 1979). Role-taking is a skill that seems to cut across most of the domains usually included in social cognition, and has been shown to be positively correlated to social competence (Elardo, Caldwell and Webb, Note 4). Role taking activities have most often been used as a training procedure rather than as a dependent variable, however. Examples of such training programs include Allen, Chinsky, Larcen, Lochman and Selinger (1976); Platt, Spivack and Swift (1975); Sarason (1968); Sarason and Ganzer (1969, 1973). One intervention program that specifically attempted to train role taking ability found that the experimental group trained in their regular classrooms improved in role taking ability significantly (Elardo and Cooper, 1977). For a more detailed review of training programs involving role taking and other specific social cognitive skills with special attention to exceptional children, refer to Greenspan (1979), Simeonsson (1979) and Shantz (1975).

Because of the special emphasis on cognitive factors and the importance of problem solving in the social problem-solving framework, we have focused in detail on some of the interventions developed from that perspective. Although social problem solving is not the only social cognitive skill of importance, it does appear to be an important dimension of social competence.

Social Problem Solving. The training programs developed from the ICPS model are based on the assumption that as cognitive interpersonal problem-solving skills improve, improvement in overt behavior will follow (Spivack et al, 1976). In training interpersonal cognitive problem-solving skills, the focus has been to help children learn to generate different ways to solve social problems while satisfying their needs and coping with their frustrations. The intent also is to develop effective thinking *processes* in children, rather than develop adult-valued appropriate thinking *content*. A child's social competence is guided more by *how* he or she thinks than *what* he or she thinks (Shure, 1982).

All such programs incorporate real-life social situations developed for use in a variety of training settings, including school, home, hospital or clinic. By providing training experiences similar to those encountered in real life, the improved effects will be generalized across settings and maintained across time.

As an example of training procedures used to improve ICPS skills, an outline of one of the first social problem-solving programs implemented by Spivack and Shure is included (Spivack et al, 1976). The program was designed as a preventive intervention for kindergarten children. See Spivack et al, (1976), for descriptions of programs developed for third/fourth grade children, fourth/fifth grade children, hyperactive children, chronic psychiatric patients, young adult group therapy clients and mothers of young

children.

The program consists of a series of structural lessons in the form of games that a teacher directs with children. In addition, the teacher uses a general problem solving approach to handle interpersonal problems that arise during the day. The program script is composed of 35 games, followed by 12 interpersonal problem situations to help children develop alternative thinking skills, consequential thinking skills, and pairing specific solutions with consequences skills.

Formal lessons take about 20 minutes per day, for a period of three months. Material used in the lessons includes pictures, hand puppets, storybooks and toys. The major concepts delivered during the framework of lessons in the sequence they are covered during instruction and are outlined here.

Concepts	Activities
1. **Language** (same/different, not, and, or, if-then), listening, paying attention	Games
2. **Identifying emotions** (associating, sad, happy, mad with behavioral signs)	Games using pictures, discussion
3. **Multiple attributes** (awareness that there is more than one element about a person at any one time which has to be considered before taking action)	Games using pictures
4. **Information gathering** (learning ways to determine how others feel)	Teacher demonstration, games using role playing, discussion
5. **Emotional awareness** (identifying emotional reactions to particular interpersonal conflict situations)	Games using role playing, puppets, stories
6. **Additional language** concepts (why-because, might-maybe, before-after, now-later)	Games
7. **Emotional causality** (identifying variety of causes for particular emotional reactions to situations)	Games, using pictures, discussion
8. **Beginning consequences** (identifying consequences of certain acts and determining why the act may or may not be a good idea)	Games, using pictures, discussion
9. **Problem-solving** (3 parts: generating solutions, generating consequences, pairing specific solutions with consequences)	12 interpersonal problem situations presented with pictures, students dialogue problem-solving process, discussion

Although social-cognitive intervention programs are structured in a variety of ways, there is much overlap in the specific techniques used. This program should give a flavor of the types of interventions that comprise these types of training programs. (For a more extended and detailed discussion of various cognitive interventions and a review of treatment results, refer to Urbain and Kendall, 1980.) Again, although there is a differentiation between social-cognitive interventions and cognitive-behavioral interventions, there is a great deal of overlap between them. However, both types of interventions share the similarity that they focus on increasing one's awareness of his or her own behavior, especially in relation to others, and can be considered metacognitive in that respect.

Generalization and Maintenance

Although much success has been reported in training children in specific behaviors and abilities, this type of training often fails to produce generalizable changes in behavior, especially when no regard is given to the actual situational and contextual settings in which interaction will eventually occur (Wahler, Berland and Coe, 1979).

Once it is demonstrated that a training procedure has been successful and a specific skill(s) or behavior(s) learned, a primary consideration is how long and under what conditions the changes will last. The concern with examining whether changes in behavior observed in one setting also occur in other situations and settings is referred to as generalization or transfer of training. On the other hand, concern with examining whether observed changes last over time is referred to as maintenance.

Although generalization is often thought of as one entity, there are actually several factors that may effect the durability of training. In experimental terms, *external validity* refers to the extent the results of an experiment can be extended beyond the conditions of the experiment. Therefore, characteristics of the experiment (or in our case, training) that might limit the extension of the results are referred to as *threats to external validity*. Kazdin (1982) has delineated at least nine separate threats to external validity, or variables that must be taken into account in designing training programs:

a. **Generality across subjects**—Do the results extend to subjects whose characteristics differ from those included in the experiment or training?
b. **Generality across settings**—Do the results extend to other situations and contexts beyond those included in the training?
c. **Generality across response measures**—Do the results extend to behaviors not included in the training?
d. **Generality across time**—Do the results extend beyond the actual times during the day that the intervention is in effect, and to times after the intervention has been terminated (the same as maintenance)?
e. **Generality across behavior change agents**—Do the results extend to persons other than the one who conducted the training?
f. **Reactive experimental arrangements**—Are the results due to the fact that subjects are aware that they are participating in a special training program?
g. **Reactive assessment**—Are the results due to the fact that subjects are aware that they are being assessed and are therefore acting differently?
h. **Pretest sensitization**—Are the results due to the subjects' sensitization to the intervention that will follow, which may not be present with those who do not receive such sensitization?
i. **Multiple-treatment interference**—Are the results due to the fact that only some specified combination of treatments is effective or to the order of training administered?
(Kazdin, 1982, p. 82)

Although other approaches are concerned with the durability of training effects, those with an applied behavior analysis perspective have been most systematic in their efforts to demonstrate generalization and maintenance. Detailed discussions of designs and procedures related to generalization from an applied behavior analysis perspective can be found in Kazdin (1980, 1982), Marholin, Siegel and Phillips (1976), and Stokes and Baer (1977).

Cognitive Factors in Generalization and Maintenance

Researchers in the area of memory with exceptional children, especially mentally retarded children, face the same problem faced by researchers in social competence and skills training, namely the generalization and durability of training. Interestingly, investigators' works in memory research and social skills research identified essentially the same processes hypothesized as leading to the generalization of behavior change. These processes include self-awareness, the deautomatization of behaviors, and the role of strategic problem-solving processes (Belmont and Butterfield, 1977; Borokowski and Cavanaugh, 1978; Campione and Brown, 1977; Meichenbaum, 1977). More specifically, these self-regulatory routines are

comprised of component skills such as estimation of task difficulty, self-interrogation, self-testing, monitoring the use of a strategy, adjusting the strategy to task demands and incorporating implicit feedback (Meichenbaum and Asarnow, 1979). It is not difficult to compare the similarities between these skills or strategies described as characteristic of a metacognitively sophisticated individual by Meichenbaum and Asarnow, and those that are the targets of intervention in the cognitive-behavioral and social-cognitive approaches described earlier. The similarity between skills important for generalization and maintenance of behavior, and skills that are the targets of various cognitive approaches partially addresses the issue of durability of behavior changes. The role of differences in context, and the need to take this variable into account in training, however, merits further discussion.

Contrary to what many believe, academic skills and knowledge are necessary but not sufficient for achieving academic success. Mehan (1979) demonstrated that competent membership in the class-community involves knowing with whom, when and where one can speak and act, and engaging in speech and behavior appropriate for a given classroom situation. Students must not only have access to specific knowledge, but must also be able to engage appropriately in behaviors such as "getting the floor," "holding the floor," and "introducing news." Mehan and others (Cicourel, 1973; Garfinkel, 1967; Mehan and Wood, 1975) suggest that classroom procedures, like other normative rules, are tacit and often implicitly communicated. Further, not only do these normative rules change depending on class activity, but they are often different from the interactional norms found in out-of-school contexts. Therefore, it seems that a competent student would need to continously monitor and evaluate his or her own behavior. In short, as Erickson and Shultz (1977) suggest, the capacity to monitor changing contexts and one's behavior in relation to those contexts are essential features of social competence. These monitoring skills are the targets of cognitive interventions, either directly or indirectly.

This is important for generalization and maintenance because the skills and abilities that comprise general monitoring skills are not welded to any specific context or problem-solving situation, and are therefore suitable for a variety of problem situations. In addition, by reducing the artificiality sometimes associated with training procedures, and by attempting to incorporate many aspects of the "real world" into training, additional assurances of generalization will be guaranteed.

Taken as a whole, cognitive approaches appear to be crucial and central to the development of a metacognitively sophisticated individual who can plan ahead, self-interrogate and engage in some of the other behaviors characteristic of self-regulatory behavior. Cognitive approaches often target skills very similar to, if not the equivalent of, metacognitive abilities, and are therefore essential in generalizing and maintaining behavior. Although there is much overlap in the cognitive approaches, there are also important and distinguishable differences between them. However, the emphasis on *how* to think rather than on strictly *what* to think has enormous potential for the conceptualization and training of socially appropriate behaviors and social competence and should be an important part of classroom training.

Notes

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3. Chandler, M.J. "Egocentrism and Childhood Psychology: The Development and Application of Measurement Techniques." Paper presented at the meeting of the Society for Research in Child Development, Minneapolis, April, 1971.
4. Elardo, P.T., Caldwell, B.M., and Webb, R. "An Examination of the Relationship between Role-Taking and Social Competence." Paper presented at the Southeastern Conference on Human Development, Nashville, Tennessee, April 1976.

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